Application No. 09/630,258
Filed: August 1, 2000
TC Art Unit: 2124
Confirmation No.: 7200

REMARKS

The instant Amendment is filed in response to the official action dated December 18, 2003. Reconsideration is respectfully requested.

The status of the claims is as follows:

Claims 1-8 are currently pending.

Claims 1-8 stand rejected.

Claims 1, 5, and 8 have been amended.

The Examiner has rejected claims 1-8 under 35 U.S.C. 102(e) as being anticipated by Nakai *et al.* (USP 6,115,728). Specifically, the official action indicates that the Nakai reference discloses a method for computing a fast Fourier transform that includes, in part, the steps of (f) sequentially storing R butterfly output data values in sequential memory locations of a third memory in the order in which the output data values are used in the calculations in a next stage, and (g) performing previous steps (c)-(f) N/R x 2 times.

The Applicants respectfully submit, however, that the Nakai reference does <u>not</u> disclose the steps of (f) storing the R

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butterfly output data values in sequential memory locations of a third memory, and (g) performing the previous steps (c)-(f) N/R x 2 times, in which the reading step (d) includes reading the R butterfly data values from the third memory, and the memory store operation performed in the storing step (f) has a unity stride, thereby allowing R butterfly data values to be read from contiguous memory locations *each time the R butterfly data values are read from the third memory*, as recited in amended base claim 1. The notion of storing the R butterfly output data values in the third memory by a memory store operation having a unity stride is disclosed throughout the instant application, *e.g.*, see page 10, line 28, to page 11, line 3, of the application.

In contrast, the fast Fourier transform (FFT) processor disclosed in the Nakai reference does *not* read *R butterfly data values from contiguous* memory locations *each time the R butterfly data values are read from the memory*. Instead, as indicated on page 5 of the official action, the first butterfly operation in the FFT processing stage [i+2] (see Fig. 7 of Nakai et al.) merely uses the first *two* ordered data from the RAM. R butterfly data values are not read from contiguous memory locations each time the

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R butterfly data values are read from the memory, as recited in amended claim 1.

For example, as shown in Fig. 7 of the Nakai reference, the first butterfly operation in the FFT processing stage [i] receives data that is separated by 2 storage locations, and the second butterfly operation in the FFT processing stage [i] receives data that is separated by 4 storage locations. Further, the first butterfly operation in the FFT processing stage [i+2] receives data that is separated by 4 storage locations, and the second butterfly operation in the FFT processing stage [i+2] receives data that is separated by 1 storage location. Moreover, the first butterfly operation in the FFT processing stage [i+4] receives data that is separated by 4 storage locations, and the second butterfly operation in the FFT processing stage [i+4] receives data that is separated by 2 storage locations. Accordingly, for the Nakai FFT processor, the distance between the storage locations where the output data values are stored (*i.e.*, the stride) varies from 1 to 4.

Because the stride varies from 1 to 4 for the memory store operations of the Nakai FFT processor, the Nakai device does not

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have a unity stride. The Nakai FFT processor therefore does <u>not</u> allow R butterfly data values to be read from contiguous memory locations each time the R butterfly data values are read from the memory, as recited in amended claim 1.

When the stride is unity, the R butterfly data values are stored contiguously in the third memory. Subsequent stages in an FFT processor operating according to the method of claim 1 can therefore access contiguous memory locations when accessing the input data for each stage. As a result, the number of calculations needed for the memory operations is reduced, and the arithmetic that uses pointers or other memory accessing functions is simplified.

Because the Nakai reference neither teaches nor suggests performing a memory store operation having a unity stride to allow R butterfly data values to be read from contiguous memory locations each time the R butterfly data values are read from the memory, as recited in amended claim 1, the Nakai reference does <u>not</u> anticipate amended claim 1 and the claims dependent therefrom. Further, because amended base claims 5 and 8 similarly recite apparatus for performing an FFT calculation, in which memory store

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operations are performed having a unity stride so that R butterfly data values can be read from contiguous locations in the memory, the Nakai reference does not anticipate amended claims 5 and 8 and the claims dependent therefrom. Accordingly, the Applicants respectfully submit that the rejections of the claims 1-8 under 35 U.S.C. 102 are unwarranted and should be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is in a condition for allowance. Early and favorable action is respectfully requested.

The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of

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the present application.

Respectfully submitted,

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